



האולימפיאדה הארצית במתמטיקה לכיתות ג-ד
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1. Which number can we write in all the blue squares so that the sums in all 3×3 squares will be equal to each other?

	5	4	3
5		5	4
4	5		5
3	4	5	

2. A number is called a palindrome if its digits can be read in reverse order, and the result will not change. For example, the number 4407667044 is a palindrome number, and the number 92329 is also a palindrome number.
How many different five-digit palindrome numbers exist?
3. In the following summation exercise different digits are replaced by different shapes, and same digit is replaced by same shape. Find the result of the summation:

$$\square \triangle \square \triangle \square + \triangle \square \triangle \square \triangle = \bigcirc \triangle \triangle \triangle \triangle \bigcirc$$

4. Avi works on the top floor of a high-rise building. His friends Benny and Gili work on other floors in the same building. Every morning and every evening Avi visits them to say hi.
Every morning Avi enters the building, takes an elevator 21 floors up to Benny's office, then takes the stairs a few floors down to Gili's office, and then takes the elevator 17 floors up to his own office on the top floor.
Every evening Avi takes the elevator 9 floors down from his office to Benny's office, then takes the stairs a few floors down to Gili's office, and then takes the elevator 13 floors down to the bottom floor and goes home.
How many floors are there in the building?
5. A polygon with the area of 12 is drawn on a square grid, such that all its sides are lines on the grid (the area of each square of the grid is 1). What is the maximal possible perimeter of such a polygon?
6. On the street there are 16 houses in a row, each green, or red, or blue. There is at least one house of each color. No two houses of same color and next to each other. Between every two blue houses there is at least one red house. Between every two green houses there are at least one blue house and at least one red house. What is the maximal possible number of green houses on the street?